

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Inventorship..... Shen et al
Assignee Microsoft Corporation
Group Art Unit 2621
Examiner VO, TUNG T.
Attorney's Docket No. MS1-1806US
Title: COLOR SPACE CODING FRAMEWORK

APPEAL BRIEF

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INTRODUCTORY COMMENTS

Pursuant to 37 C.F.R. § 41.37, Appellant hereby submits an Appeal Brief for Application Serial No. 10/733,876 filed Dec 10, 2003. A Notice of Appeal was filed on March 20, 2006. Concurrently with the Notice of Appeal, Appellant filed a Pre-Appeal Brief Request. The Office responded to the Request on May 17, 2006. Therefore, the due date for submitting an Appeal Brief was set for June 17, 2006. Appellant appeals to the Board of Patent Appeals and Interferences (hereinafter "Board") seeking review of the Office's rejections.

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1 **(i) Real Party in Interest**

2 The real party in interest is the Microsoft Corporation, the assignee of all
3 right and title to the subject invention.

4
5 **(ii) Related Appeals and Interferences**

6 Appellant is not aware of any other appeals or interferences which will
7 directly affect, be directly affected by, or otherwise have a bearing on the Board's
8 decision to this pending Appeal.

9
10 **(iii) Status of Claims**

11 Allowed Claims: No claims have been allowed.

12 Canceled Claims: Claims 2, 3, 20, and 27 were previously canceled.

13 Originally Presented Claims: Claims 1-34 were originally presented
14 when this Application was filed.

15 Pending Claims: Claims 1, 4-19, 21-26 and 28-34 stand rejected and are
16 pending in this Application as set forth in the Claims Appendix on page 15.

17 Appealed Claims: All of the pending claims are subject to this Appeal.
18 Claims 1, 4-19, 21-26 and 28-34 stand rejected under 35 U.S.C. §102(b) as being
19 anticipated by U.S. Patent No. 5,412,428 to Tahara. Claim 29 was rejected under
20 35 U.S.C. §103(a) as being unpatentable over the Tahara reference in view of
21 Official Notice. These rejections are set forth in the Final Office Action dated
22 October 18, 2005.

1 **(iv) Status of Amendments**

2 A Final Office Action was issued on October 18, 2005 whereupon
3 Appellant filed a Response on January 6, 2006 to address the rejections of pending
4 claims. No claims were amended or canceled in the Response.

5 An Advisory Action was issued on February 17, 2006 in response to the
6 Response filed on January 6, 2006. The Advisory Action stated that the filed
7 Response would be entered for the purposes of appeal.

8
9 **(v) Summary of Claimed Subject Matter**

10 The following is a concise explanation of each independent claim 1, 11, 19,
11 26 and 30 involved in the Appeal and includes references to the specification by
12 page and line number, and to the drawings. The independent claims are not to be
13 limited solely to the elements identified by the reference characters.

14 **Claim 1** recites receiving a video information stream including color
15 information formatted according to a first color space sampling format having a
16 pre-determined number of bits (*page 22, lines 6-7 and figure 11*), splitting the
17 color information into a base information stream formatted according to a second
18 color space sampling format having less than the pre-determined number of bits
19 and into an enhanced information stream, wherein the enhanced information
20 stream is selectively encoded using spatial information obtained from processing
21 of the base information stream or using a previous reference obtained during
22 processing of the enhanced information stream (*page 23, lines 3-18 and figure 11*),
23 and providing an indicator with at least one of the base information stream and the
24 enhanced information stream that indicates a capability for providing video
25

1 information according to the first color space sampling format or the second color
2 space sampling format (*page 25, lines 1-25 and figure 11*).

3 **Claim 11** recites converting a first multimedia format into a base stream
4 and an enhanced stream, the base stream corresponding to another multimedia
5 format and the enhanced stream including information that when combined with
6 the base stream re-constructs the first multimedia format, wherein the enhanced
7 stream is selectively encoded using spatial information obtained from processing
8 of the base stream or using a previous reference obtained during processing of the
9 enhanced stream (*page 23, lines 3-18 and figure 11; and page 25, lines 1-25 and*
10 *figure 11*).

11 **Claim 19** recites a base encoder for encoding a base information stream
12 formatted according to a first color space sampling format (*page 23, lines 3-18*
13 *and figure 11*), and an enhanced encoder for encoding an enhanced information
14 stream that contains color space information unavailable in the first color space
15 sampling format, wherein the enhanced encoder selectively encodes the enhanced
16 information stream using spatial information obtained from processing of the base
17 information stream or using a previous reference obtained during processing of the
18 enhanced information stream (*page 25, lines 1-25 and figure 11*).

19 **Claim 26** recites a base decoder for decoding an encoded base bit stream
20 associated with a first color space sampling format (*page 23, lines 3-18 and figure*
21 *11*), and an enhanced decoder for decoding an encoded enhanced bit stream that
22 contains color space information unavailable in the first color space sampling
23 format wherein the enhanced decoder selectively decodes the enhanced
24 information stream using spatial information obtained from processing of the base
25

1 information stream or using a previous reference obtained during processing of the
2 enhanced information stream (*page 25, lines 1-25 and figure 11*).

3 **Claim 30** recites an input for receiving video information (*page 22, lines 6-*
4 *7 and figure 11*), a circuit for formatting part of the video information according to
5 a color space sampling format and formatting another part of the video
6 information according to another format, wherein the other format is selectively
7 encoded using spatial information obtained from processing of the part of the
8 video information or using a previous reference obtained during processing of the
9 other part (*page 23, lines 3-18 and figure 11; and page 25, lines 1-25 and figure*
10 *11*), and a circuit for storing the part of the video information and the other part of
11 the video information.

12
13 **(vi) Grounds of Rejection to be Reviewed on Appeal**

14 **Claim Rejection Under 35 U.S.C. § 102**

15 Claims 1, 4-19, 21-26 and 28-34 stand rejected under 35 U.S.C. §102(b) as
16 being anticipated by U.S. Patent No. 5,412,428 to Tahara (hereinafter referred to
17 as the Tahara reference).

18 **Claim Rejection Under 35 U.S.C. § 103**

19 Claim 29 was rejected under 35 U.S.C. §103(a) as being unpatentable over
20 the Tahara reference in view of Official Notice.

1 **(vii) Argument**

2
3 **(A) Claims 1, 4-19, 21-26 and 28-34 are allowable because the**
4 **Tahara does not disclose or suggest the subject matter of these**
5 **claims**

6 In overview, in order for prior art to anticipate a claim under 35 U.S.C.
7 §102 every element of the claimed invention must be identically disclosed either
8 expressly or under principles of inherency in a single reference. Further, the
9 exclusion of a claimed element from a prior art reference, no matter how
10 insubstantial, is enough to negate anticipation by that reference. The test of
11 whether anticipation exists in a particular case is a question of fact, and is applied
12 element-by-element to a single prior art reference. Only if the prior art literally
13 reads on every element of the rejected claim will the claimed invention be
14 anticipated under this test.

15 With this in mind, the Appellant analyzes the §102 rejection of the claims in
16 the present application. Independent Claim 1 includes the subject matter: "wherein
17 the enhanced information stream is selectively encoded using spatial information
18 obtained from processing of the base information stream or using a previous
19 reference obtained during processing of the enhanced information stream."
20 Independent Claims 11, 19, and 30 include similar subject matter as well.
21 Independent Claim 26 includes the subject matter: "wherein the enhanced decoder
22 selectively decodes the enhanced information stream using spatial information
23 obtained from processing of the base information stream or using a previous
24 reference obtained during processing of the enhanced information stream."
25

1 The present Application describes a process of spatially predicting a P-
2 frame (enhanced information) using a reference from a base stream that is stored
3 in a frame buffer 1132. Also, the present Application describes a process of
4 predicting a P-frame from a previous reference generated from the enhanced
5 stream stored in a frame buffer 1152. A switch 1158 is capable of selectively
6 choosing one of these processes. The Office is directed to page 25 of the present
7 Application for further information related to the foregoing description.
8 Selectively being able to choose between the two processes provides greater
9 efficiency in prediction coding and results in a performance boost in comparison
10 to traditional encoding mechanisms.

11 On page 3 of the current Office Action, the Office asserts column 8, lines
12 54-64 and column 23, lines 23-35 teach the indicated subject matter of the
13 independent claims. Appellant disputes the Office's assertions for the following
14 reasons.

15 The Office asserts Tahara teaches an enhanced information stream that is
16 selectively encoded using spatial information obtained from processing of a base
17 information stream, or using a previous reference obtained during processing of
18 the enhanced information stream. To substantiate this assertion, the Office
19 maintains that a data stream of a circuit 101 is selectively encoded by way of a
20 select circuit 176. According to the Office, the select circuit 176 selects a
21 predictive error from a data stream of a circuit 100, or a predictive error from "a
22 previous reference of 101." Regarding the quoted text, the Appellant is not
23 entirely sure what the Office is trying to convey here. The Appellant assumes the
24 Office is asserting that the select circuit 176 is capable of selecting a predictive
25 error that is generated by a circuit 101. The Appellant requested that the Office

clarify the quoted text. Unfortunately, the Office did not do so. The preceding discussion is a summary of the Office's assertions found on page 3, second full paragraph, of the current Office Action.

The Appellant will now describe how the instant claimed invention differs from the Tahara encoding and decoding methods. The circuit 101 is for processing color difference signals with intermediate definition, where the circuit 100 is for processing color difference signals with the lowest definition and the luminance signals. (See column 22, lines 48-53.) The color difference signals and luminance signals are described in the patent at *column 8, lines 5-18*. According to the Tahara description at *column 23, lines 23-35*, the select circuit 176 chooses between predictive error signals produced from an up sampling circuit 111 and predictive error signals produced from a motion compensating circuit 175. The circuit 101 includes the up sampling circuit 111 and the compensating circuit 175. (See Fig. 19).

The up sampling circuit 111 and the motion compensation circuit 175 produce the mentioned predictive error signals from the color difference signals that have intermediate definition. This is described in the Tahara patent at *column 23, lines 1-5*. The color difference signals with the lowest definition and the luminance signals are not used to produce the predictive error signals discussed in the foregoing. Tahara confirms this fact by stating that the operation of the circuit 100 is not discussed in conjunction with the circuit 101. (See column 22, lines 63-65.) Recall, the circuit 100 processes the color difference signals with the lowest definition and the luminance signals. (See column 22, lines 51-53.) The Office asserts the signals processed by the circuit 100 are analogous with the base information stream referenced in the claims.

1 The above shows that the Office's reasoning for finding claims 1, 11, 19,
2 26 and 30 unpatentable lacks merit. In particular, Tahara cannot teach the
3 recitation "the enhanced information stream is selectively encoded using spatial
4 information obtained from the processing the base information stream" (claims 1,
5 11, 19, and 30), or the recitation "the enhanced decoder selectively decodes the
6 enhanced information stream using spatial information obtained from processing
7 of the base information stream" (claim 26), as predictive error signals produced
8 from an up sampling circuit 111 and predictive error signals produced from a
9 motion compensating circuit 175 are not produced by processing signals from the
10 circuit 100; only signals from the circuit 101 are used to produce the predictive
11 error signals generated by the circuits 111 and 175.

12 Regarding the claim recitation that teaches encoding the enhanced
13 information stream "using a previous reference obtained during processing of the
14 enhanced information stream" (claims 1, 11, 19, and 30), and the recitation that
15 teaches an enhanced decoder that selectively decodes "using a previous reference
16 obtained during processing of the enhanced information stream" (claim 26),
17 Appellant respectfully submits that the Tahara is deficient in connection with these
18 limitations as well. Specifically, Tahara describes that the select circuit 176
19 compares predictive error signals output from the up sampling circuit 111 to
20 predictive error signals output from the motion compensation circuit 175. (See
21 column 23, lines 24-28.) The smaller predictive error signals are chosen based on
22 this comparison. (See column 23, lines 28-29.) The chosen smaller predictive
23 error signals are used for encoding and decoding the color difference signals. This
24 teaching cannot be construed as teaching encoding/decoding the enhanced
25

1 information stream “using a previous reference obtained during processing of the
2 enhanced information stream.”

3 Each of the remaining rejected dependent claims, depends from either
4 independent Claim 1, 11, 19, 26, or 30 and includes other limitations that are not
5 taught or suggested by the Tahara reference. Therefore, for at least some of the
6 above reasons, Appellant respectfully submits that the §102 rejection of claims 1,
7 4-19, 21-26 and 28-34 is improper, and respectfully requests reconsideration and
8 withdrawal of this rejection.

9
10 **(B) Claim 29 is allowable at least due to its dependence upon an**
11 **allowable independent claim**

12 Claim 29 was rejected under 35 U.S.C. §103(a) as being unpatentable over
13 the Tahara reference in view of Official Notice. For at least some of the reasons
14 that follow, Appellant respectfully disagrees that the subject matter of claim 29 is
15 obvious over the Tahara reference in view of Official Notice.

16 In overview, as stated in MPEP § 2143, to establish a prima facie case of
17 obviousness, three basic criteria must be met. First, there must be some
18 suggestion or motivation, either in the references themselves or in the knowledge
19 generally available to one of ordinary skill in the art, to modify the reference or to
20 combine reference teachings. Second, there must be a reasonable expectation of
21 success. Finally, the prior art reference (or references when combined) must teach
22 or suggest all the claim limitations. The teaching or suggestion to make the
23 claimed combination and the reasonable expectation of success must both be
24 found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20
25 USPQ2d 1438 (Fed. Cir. 1991).

Further, as stated in MPEP § 2143.01, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

Therefore, "all words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).


Without repeating the arguments discussed above, the Appellant maintains that the Tahara reference does not teach or suggest a decoder that "selectively decodes the enhanced information stream using spatial information obtained from processing of the base information stream or using a previous reference obtained during processing of the enhanced information stream" as recited in claim 26. Claim 29 is dependent on claim 26 and is at least allowable as a result of this dependency.

1
2 Conclusion

3 Claims 1, 4-19, 21-26 and 28-34 are in condition for allowance. Appellant
4 respectfully requests reconsideration and prompt allowance of the subject
5 application.
6
7
8

9
10 Date: 7-7-2006

Respectfully Submitted,

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(viii) Claims Appendix

1
2
3 1. (Previously Amended) A method comprising:
4 receiving a video information stream including color information formatted
5 according to a first color space sampling format having a pre-determined number
6 of bits;

7 splitting the color information into a base information stream formatted
8 according to a second color space sampling format having less than the pre-
9 determined number of bits and into an enhanced information stream, wherein the
10 enhanced information stream is selectively encoded using spatial information
11 obtained from processing of the base information stream or using a previous
12 reference obtained during processing of the enhanced information stream; and

13 providing an indicator with at least one of the base information stream and
14 the enhanced information stream that indicates a capability for providing video
15 information according to the first color space sampling format or the second color
16 space sampling format.

17
18 2. (Canceled)

19
20 3. (Canceled)

21
22 4. (Original) The method of claim 1, further comprising encoding the
23 base information stream into a base encoded bit stream, encoding the enhanced
24 information stream into an enhanced encoded bit stream, and combining the base
25 encoded bit stream and the enhanced encoded bit stream into an output bit stream.

1
2 5. (Original) The method of claim 4, wherein the output bit stream
3 comprises an interleaved stream of the enhanced encoded bit stream and the base
4 encoded bit stream.

5
6 6. (Original) The method of claim 4, wherein the output bit stream
7 comprises a concatenated stream of the enhanced encoded bit stream and the base
8 encoded bit stream.

9
10 7. (Original) The method of claim 6, wherein the enhanced encoded bit
11 stream follows the base encoded bit stream.

12
13 8. (Original) The method of claim 4, wherein the output bit stream
14 comprises a first file for the enhanced encoded bit stream and a second file for the
15 base encoded bit stream.

16
17 9. (Original) The method of claim 1, wherein the color information
18 includes chrominance blocks.

19
20 10. (Original) The method of claim 1, wherein the first color space
21 sampling format comprises a YUV422 format and the second color space
22 sampling format comprises a YUV420 format.

1 11. (Previously Amended) A computer-readable medium having
2 computer-executable instructions, the instructions comprising:

3 converting a first multimedia format into a base stream and an enhanced
4 stream, the base stream corresponding to another multimedia format and the
5 enhanced stream including information that when combined with the base stream
6 re-constructs the first multimedia format, wherein the enhanced stream is
7 selectively encoded using spatial information obtained from processing of the base
8 stream or using a previous reference obtained during processing of the enhanced
9 stream.

10
11 12. (Original) The computer-readable medium of claim 11, wherein the
12 multimedia format comprises an encoded video format.

13
14 13. (Original) The computer-readable medium of claim 11, wherein
15 converting the first multimedia format into the base stream and the enhanced
16 stream comprises storing chrominance blocks associated with the other
17 multimedia format in the base stream and storing the chrominance blocks that are
18 not associated with the other multimedia format in the enhanced stream.

19
20 14. (Original) The method of claim 11, further comprising encoding the
21 base stream into a base encoded bit stream, encoding the enhanced stream into an
22 enhanced encoded bit stream, and combining the base encoded bit stream and the
23 enhanced encoded bit stream into an output bit stream.
24
25

1 15. (Original) The method of claim 14, wherein the output bit stream
2 comprises an interleaved stream of the enhanced encoded bit stream and the base
3 encoded bit stream.

4
5 16. (Original) The method of claim 14, wherein the output bit stream
6 comprises a concatenated stream of the enhanced encoded bit stream and the base
7 encoded bit stream.

8
9 17. (Original) The method of claim 16, wherein the enhanced encoded
10 bit stream follows the base encoded bit stream.

11 18. (Original) The method of claim 14, wherein the output bit stream
12 comprises a first file for the enhanced encoded bit stream and a second file for the
13 base encoded bit stream.

14
15 19. (Previously Amended) A device comprising:
16 a base encoder for encoding a base information stream formatted according to a
17 first color space sampling format; and

18 an enhanced encoder for encoding an enhanced information stream that
19 contains color space information unavailable in the first color space sampling
20 format, wherein the enhanced encoder selectively encodes the enhanced
21 information stream using spatial information obtained from processing of the base
22 information stream or using a previous reference obtained during processing of the
23 enhanced information stream.

24
25 20. (Canceled)

1 21. (Original) The device of claim 19, further comprising an output
2 stream formulator that combines the encoded enhanced information stream and the
3 encoded base information stream into an output stream.

4
5 22. (Original) The device of claim 21, wherein the output stream
6 comprises the encoded enhanced information stream interleaved with the encoded
7 base information stream.

8
9 23. (Original) The device of claim 21, wherein the output stream
10 comprises the encoded enhanced information stream concatenated to the encoded
11 base information stream.

12
13 24. (Original) The device of claim 21, wherein the output stream
14 comprises a first file containing the encoded enhanced information stream and a
15 second file containing the encoded base information stream.

16
17 25. (Original) The device of claim 24, wherein device comprises a
18 digital video camera.

19
20 26. (Previously Amended) A device comprising:
21 a base decoder for decoding an encoded base bit stream associated with a
22 first color space sampling format; and
23 an enhanced decoder for decoding an encoded enhanced bit stream that
24 contains color space information unavailable in the first color space sampling
25 format wherein the enhanced decoder selectively decodes the enhanced

1 information stream using spatial information obtained from processing of the base
2 information stream or using a previous reference obtained during processing of the
3 enhanced information stream.

4
5 27. (Canceled)

6
7 28. (Original) The device of claim 26, further comprising a compositor
8 for generating a second color space sampling format from the encoded enhanced
9 bit stream and the encoded base bit stream.

10
11 29. (Original) The device of claim 26, wherein the device comprises a
12 set-top box.

13
14 30. (Previously Amended) A device comprising:
15 an input for receiving video information;
16 a circuit for formatting part of the video information according to a color
17 space sampling format and formatting another part of the video information
18 according to another format, wherein the other format is selectively encoded using
19 spatial information obtained from processing of the part of the video information
20 or using a previous reference obtained during processing of the other part; and
21 a circuit for storing the part of the video information and the other part of
22 the video information.

23 31. (Original) The device of claim 30, wherein the circuit for formatting
24 comprises a programmable circuit.
25

1 32. (Original) The device of claim 30, wherein the circuit for storing
2 comprises a programmable circuit.

3
4 33. (Original) The device of claim 30, wherein the input comprises a
5 sensor.

6
7 34. (Original) The device of claim 30, wherein the input comprises at
8 least one CCD array.

1 (ix) Evidence Appendix

2 None.

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2 (x) Related Proceedings Appendix

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